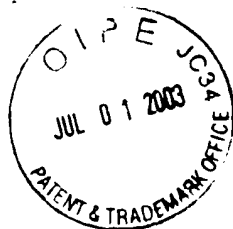


ATTY. DKT. NO. 215177.00101
CUSTOMER NO. 27160

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicant: James J. Hickman

Examiner: M. P. Allen

Serial No.: 09/575,377

Art Unit: 1631

Filed: May 22, 2000

For: HIGH THROUGHPUT FUNCTIONAL GENOMICS

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DECLARATION UNDER 37 C.F.R. §1.132

Commissioner for Patents

Washington, DC 20231

Sir:

I, Prof. James J. Hickman, Ph.D., do hereby make the following declaration:

1. I received a PhD from MIT on September 19, 1990. I also have both an MS and BS degree from the Pennsylvania State University.
2. I am currently Hunter Chair of Biomaterials at Clemson University.
3. I have read the specification and pending claims of the above-identified patent application and have studied each of the Office Actions issued by Examiner Allen. I am familiar with the publication by Jung et al., J. Vac. Sci. Technol. A 16(3), pp. 1183 - 1188 (May/June 1998), of which I am a co-author, and familiar with the field of technology it involves.
4. I understand from Office Actions issued in this case that the Examiner is asserting that the cell-based sensor described in Jung et al. has a microelectrode with an intervening layer as claimed; that is, a sensor having a surface-modifying agent positioned between the microelectrode and the cells that provides a high impedance seal with the cells.
5. I understand that as part of the process of reconsidering rejected claims, the Examiner will take into consideration the evidence provided in this declaration as to what the structure of the Jung et al. device is, provided that this information

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would have been understood by a person of ordinary skill in the art from reading the publication itself.

6. The Examiner has pointed out that Figures 6 (a, b) of Jung *et al.* appear to be the same as Figures 1A and 1B of the present application, and she has questioned whether this fact indicates that the sensors in the publication are the same as the claimed sensors. It does not. While its true that these figures are identical, it is not true that Figures 1A and 1B of this application show data from a sensor having the claimed intermediate layer.

7. One can see from the Jung *et al.* publication that the sensor has a different structure than the present invention. The published sensor contains an array of 32 gold microelectrodes accessed by means of 14 μm diameter *vias* through a 1 μm thick insulating silicon nitride top layer, all residing on a silicon base.

8. The Jung *et al.* sensor was made with a silane self-assembled monolayer (SAM), but that did not result in the claimed structure because the microelectrode in Jung *et al.* was platinized using platinum black which is used to *lower* the impedance of the microelectrodes, and also means that the silane SAM would have formed only on the silicon nitride top layer (the insulator), not on the microelectrode. This is because the silane could not have reacted with the platinized surface due to the absence of any hydroxyl groups. Furthermore, even if the platinizing reaction had been incomplete, gold microelectrodes would not have reacted with the silane to form an intervening SAM either.

9. I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated: 6-30-03

By: 

Prof. James J. Hickman